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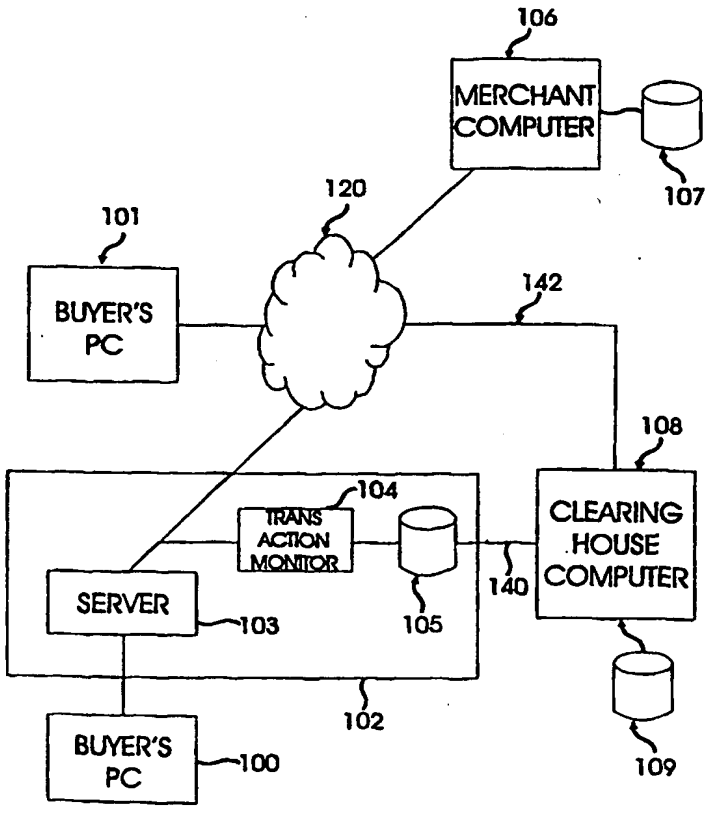
(54) Title: METHOD AND APPARATUS TO COLLECT MICRO-PAYMENTS OVER A COMMUNICATIONS NETWORK

(57) Abstract

A method and system for electronic commerce over a communications network (120), wherein a buyer (100) uses the network (120) to purchase electronically deliverable goods or "e-content" from a seller (106). Delivery of each item is recorded by a service provider (102) who invoices the buyer (100) for the item delivered. When the buyer (100) pays the service provider (102) for the item purchased, the service provider (102) makes payment to the seller (106).



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METHOD AND APPARATUS TO COLLECT MICRO-PAYMENTS OVER A COMMUNICATIONS NETWORK

This application claims the benefit of priority under 35 U.S.C. § 119(e) to provisional application Serial No. 60/118,320, filed on February 2, 1999, the contents of which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

This invention is related to the field of computer networks. In particular, the invention is related to delivering electronically deliverable goods or "e-content" to a remote computer and collecting a small (micro) payment for the services rendered.

BACKGROUND OF THE INVENTION

The public data networks, collectively called the Internet and colloquially called the web, have revolutionized communication and information systems. Today, information can be transmitted at the speed of electricity, and can be replicated or archived for a later use. It is stated in the technical and commercial literature that every bit or byte of information that is transmitted via the Internet or published on the web is archived by archiving agencies in large repositories. It is also generally known that such repositories will be able to retrieve and deliver information to an interested party. The problem, however, is how much to charge for such information requests and how to collect a payment for the information delivered to a receiving party in an efficient and cost-effective way, especially if the information costs only a fraction of a unit of currency, such as a U.S. Dollar.

In the real (non-cyber) world, the main problem with collecting such small payments (micro-payments) is the transaction costs involved in the collection process. Any sale including a receipt of money as in the form of cash, an entry of numbers in a ledger or a

cash register, and a delivery of an indication of the acceptance of money along with the goods sold takes a finite amount of time. In a typical day, a sales person can make only a fixed number of sales and the compensation given to the person who performs the sale must come from the profit derived therefrom. Otherwise, the business becomes inefficient and will be forced to shut down in the face of competition.

This understanding of the process of a sale and the finite amount of time it takes to "close" a sale quickly makes it clear that the larger the amounts involved in a transaction, the greater the amount of time that can be spent on each individual transaction. Thus, if the per-sale amount is large, the number of transactions can be smaller to stay in business in a competitive environment. Conversely, the smaller the amounts involved per transaction, the larger the number of transactions must be, in order to make a viable business out of the sale.

Additional problems are related to how to collect money for a transaction over the Internet, especially if the transaction involves information exchange. Information is a commodity with some special characteristics: it can become obsolete very quickly, so it must be put up for sale immediately after it is available; just as in some service businesses, once information is delivered, it may have no further use to the recipient, because the information can be assimilated into knowledge of the subject matter. This can be easily understood with reference to the news business.

Consider, for example, that the hottest news item is that a Federal Judge has ordered Monica Lewinsky to appear before the House managers and testify or else lose her immunity deal with Independent Counsel Kenneth Starr. If a news agency obtains this information, or the information that Monica Lewinsky has just arrived in Washington, D.C. to cooperate with the House managers, this news has fleeting lifetime. Before long, everybody will have known about it. Once it is known to competing news reporting agencies, it becomes old news with no value at all.

There are other information commodities that are quite suitable for micro-payments. For example, a single strip of the hilarious cartoon such as "Dilbert©" may cost only a few cents to download. Similarly, a poet may sell a copy of his latest creations for a few pennies, hoping that he will make money by selling millions of such copies.

There is another difficulty with collecting micro-payments for information or other goods or services sold over the Internet: who will collect, and how? The traditional answer to this question is exemplified in the concept of an "Internet Wallet," a system analogous to a credit-card purchase transaction. In this system, money is transferred from a buyer's bank account to an Internet commerce exchange (ICX) company's records. First, the buyer equips his (personal) computer with a copy of the client software. Then, using a secure communications means, such as by encrypting the data, the buyer opens an account with the ICX and effects a transfer of a pre-determined amount of money from his bank checking account to the ICX account. Likewise, a plurality of sellers open accounts with the ICX and display a logo of the ICX on their web sites, indicating that they accept payments via the ICX. When the buyer later finds objects on a web site managed by the seller that are of interest to him, he executes a purchase transaction to buy the object by authorizing the ICX to debit his ICX account an amount required to purchase the object and credit a corresponding amount to the seller account with the ICX.

Thus, most of the currently available micro-payment systems require that compatible software be available at (1) the buyer's computer; (2) the seller's computer; and (3) the ICX computer. Several examples of such systems are operational today. They are: CyberCash™, NetBill™, ibill™, DigiCash™, First Virtual™, Digital/Compaq's millicent™, Visa Corporation's NetCash™ etc.

With the proliferation of electronic payment systems, it becomes difficult for a buyer or a seller to adhere to the numerous "standards" available. If a buyer wishes to purchase

electronic goods (e-goods) sold by a number of sellers, he will be forced to open accounts with many ICX companies in order to carry out his purchases. Conversely, if a buyer has only one ICX account, then he is limited to buying e-content from sellers who also have accounts with the same ICX company as the buyer. Regardless of the number of accounts the buyer uses, he can expect that each account will require him to maintain a positive cash balance, thereby depriving him of the use of these funds as well as any "float" he might otherwise have enjoyed.

In the telephone business, the local exchange company (LEC) which typically provides the basic access to the telephone networks also collects payments from a subscriber for certain toll services such as long-distance calls, collect calls, and calls made to premium services such as 1-900 number calls. Though the providers of these toll services are different entities, the LEC typically charges a subscriber in a monthly invoice and collects the revenues to distribute to the service providers. The subscriber is thus relieved of the tedium of dealing with numerous service providers. The service providers are assured of payment by the subscriber because the LEC may threaten to cut-off the subscriber's telephone service if its monthly invoices are not paid in full.

In the banking business checks are cleared by a central clearing house. Typically a check is made by a drawer who has an account with a drawer bank where the drawer has an account. In general, the drawer makes a check "to the order of" a payee in return for products or services. The payee deposits the check in a payee bank where the payee has an account. The payee bank credits the payee the amount shown on the check and presents the check to a clearing house for payment. The clearing house makes an electronic payment to a payee bank's account and debits the same amount from the drawer bank's account. The drawer bank in turn debits the amount from the drawer's account. The central clearing

house facilitates the existence of different drawer and payee banks located at different geographical locations and dealing in the same or different currencies.

There is a need, therefore, for a method and system that facilitates a single uniform method of accepting *de minimis* payments from a buyer of electronic goods or "e-content" without the use of special software at the buyer's computer or proprietary software at the seller's computer to effect the transaction and without requiring pre-payment by the buyer.

SUMMARY OF THE INVENTION

A method and system are described herein to effect the purchase of an electronically deliverable item of e-content without the need for special transaction handling software at a buyer computer or proprietary software at a seller's computer and without requiring pre-payment by the buyer. In one aspect, a method is presented of purchasing an electronically deliverable item over a communications network, wherein a buyer expresses an agreement to pay for the digital product. In a yet another aspect, the sale transaction is merely captured by a transaction monitor listening to the data traffic that enters or leaves a service provider computer operated by a service provider. In a further aspect, the sale transaction thus captured is recorded by the transaction monitor or by the service provider computer. In a yet another aspect, the sale transaction is used by the service provider in billing the buyer for the purchase of the item. In another aspect, the clearing house receives payment from the plurality of service providers and makes payments to the plurality of sellers. In a yet another aspect, special provisions are made to resolve disputes among the plurality of sellers and the plurality of service providers.

In another aspect, the invention is directed to one or more digital computers programmed to implement the method described above. In a yet another aspect, the

invention comprises a computer executable program stored on a computer readable medium to implement the method described above.

DESCRIPTION OF THE DRAWINGS

These and other objects, features and advantages of the invention will be more readily apparent from the following detailed description of a preferred embodiment in which:

FIG. 1 depicts a schematic of a buyer's computer connected to an Internet Service Provider's computer and a seller's computer via a communications network;

FIGs. 2A and 2B are a flow charts depicting the steps in a preferred embodiment of the invention;

FIG. 3 is an illustrative web page depicting a seller's offer of an electronically deliverable item of e-content to a buyer; and

FIG. 4 is a flow chart depicting the steps in a modification of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, at least one buyer computer 100 is connected to an Internet Service Provider (ISP) computer 102. The ISP computer 102 provides access to the public data networks such as the Internet 120 to the buyer computer 100. Also connected to the Internet 120, either directly or through other ISP computers (not shown), are other buyer computers 101 and at least one seller computer 106. A Central Clearing House (CCH) computer 108 is connected to the ISP computer 102 via a communications link 140 and to the Internet 120 via a communications link 142. In a preferred embodiment, the communications link 140 is a leased line. In alternative embodiments, CCH computer 108

could be connected to ISP computer 102 via link 142 and Internet 120 with or without a secure connection, or other similar connection.

The ISP computer 102 comprises a server 103, a transaction monitor 104 and a database 105. Seller computer 106 and CCH computer 108 are coupled to databases 107 and 109, respectively. In a preferred embodiment, the databases 105 and 109 are relational database management systems such as Microsoft SQL Server™ or Oracle® Relational Database Management System.

In a preferred embodiment the buyer computer 100 is a personal computer comprising a processor such as a Pentium® II microprocessor, a memory such as a semiconductor memory, a storage device such as a disk drive, a display device such as a CRT or a flat panel display, an input device such as a key board or a mouse, and a network interface device such as a modem. The buyer computer 100 is also equipped with software programs such as a Transmission Control Protocol/Internet Protocol (TCP/IP) stack to enable connection and communication with other computers via the Internet 120.

In a preferred embodiment, a buyer operating the buyer computer 100 connects to the Internet 120 via the ISP computer 102. Typically, the buyer computer 100 uses the modem and dials a telephone number, which is an access number to the ISP computer 102. When the ISP computer 102 "answers" the call, it executes a software program which enables a data connection to be established between the buyer computer and the ISP computer 102 via the TCP/IP software stack on the buyer computer 100.

The ISP computer 102, the seller computer 106 and the CCH computer 108 are general purpose computers each comprising a processor such as a Compaq Alpha® microprocessor, a storage device such as a disk drive, and a memory such as a semiconductor memory. Additionally, the ISP computer 102 is connected to a number of modems (called a modem pool or a modem bank) that are configured to accept incoming

requests for connection. The ISP computer 102 is programmed to accept requests for connection from computers such as the buyer computer 100 if the buyer had previously opened an account with the ISP computer 102.

In a preferred embodiment, the transaction monitor 104 is coupled to the lines connected to the ISP computer 102 and configured to capture or otherwise observe the communications to and from the ISP computer 102. In an alternative embodiment, the transaction monitor 104 is a software program running on the ISP computer 102, or on another device coupled to the ISP computer 102 which can capture data packets that enter or leave the ISP computer 102. In a preferred embodiment, the transaction monitor 104 is configured to capture or otherwise observe the data packets selectively based on a pre-established criteria.

It should be noted that the seller computer 106, the CCH computer 108 and the ISP computer 102 are described as separate and distinct entities only for the purpose of illustration and not as a limitation on the invention. In alternative embodiments, these computers can be coupled together, or a single computer can be programmed to function as all three computers simultaneously. Moreover, there could exist, and in any commercial embodiment of the invention, there most likely will exist, a plurality of buyer computers 100, 101, a plurality of seller computers 106 and a plurality of ISP computers 102. In Fig. 1, however, only one computer of each kind is used to describe the principles of the present invention.

Referring to FIG. 2, during initialization step 200, it is assumed that each buyer has an Internet connection provided by an ISP company such as America Online, Microsoft Network or Erols, Inc. In an alternative embodiment, if such an account does not exist, the ISP computer 102 establishes an account for a buyer operating the buyer computer 100. Typically, the buyer completes a fill-out form either on paper or electronically by filling out

a form displayed on the ISP's web site. Preferably, the buyer provides his name, address, telephone number, e-mail address, and billing account number provided by the ISP or other service provider. Additionally, the buyer agrees to pay for any micro-payment purchases he makes on the Internet 120 when using the ISP's computer to access the Internet 120. Upon the establishment of the account with the ISP, the buyer is given a user name or a user name coupled with an Internet address for the buyer, which could be a string of alphanumeric or other characters that constitute a buyer account number.

In another embodiment, the buyer creates a micro-payment account not with the ISP, but with a credit card company, a satellite communications company, a paging company, a telephone company, a power company, a cable company, an apartment complex, or any other agency with which the buyer already has an account.

Also during the initialization step 200, the ISP enters into an agreement with a Clearing House Services Provider (CHSP) that operates the CCH computer 108. The ISP agrees to collect payments for the CHSP for electronically deliverable goods sold by the sellers affiliated with the CHSP from the buyers who purchased these goods via the ISP. The ISP agrees to provide a detailed record to the CHSP comprising information about when a transaction occurred, the account number of the buyer involved in the transaction, the account number of the seller, an identification of the product or item of e-content purchased by the buyer, and the price.

Additionally, during initialization step 200, sellers operating seller computers 106 enter into agreements with the CHSP whereby each seller agrees to provide electronically deliverable items of e-content to buyers affiliated with the CHSP—i.e., those buyers who have accounts with the ISPs that entered into agreements with the CHSP -- in return for some portion of a payment received from the buyer. In a preferred embodiment of the invention, no proof of delivery of the item is required from the seller. In an alternative

embodiment, the CHSP agrees to pay each seller upon the seller's submission of a proof of delivery of an item of e-content to a buyer affiliated with the CHSP. In a further alternative embodiment, if a buyer disputes the delivery of an item, only then is a proof of delivery of the item required by the CHSP.

As part of the initialization step, the CHSP provides the seller with identification of all the ISPs who have entered into agreements with the CHSP. The seller stores this information in his database 107.

In an alternative embodiment, the CHSP and the seller agree that the CHSP will provide a device to verify the buyers as having a direct or indirect relationship or no relationship with the CHSP. In a preferred embodiment, this is accomplished by the CHSP providing sellers an access control list (ACL). The ACL contains a list of approved or disapproved buyers or their electronic addresses or other identifiers. Alternatively, the ACL may contain a list of web sites or Internet domain names which are deemed either approved or disapproved by the CHSP. In a further embodiment, a CHSP may also provide an ACL with different classifications of buyers or web sites.

By providing an ACL as described above, the CHSP places the sellers—who participate in micropayment commercial activity as described in the present invention—on notice. A seller may use the list and deny sales of e-content to any request obtained from a disapproved buyer or a buyer from a disapproved web site or domain name. Alternatively, a seller may provide preferential treatment for an approved buyer or a buyer from an approved web site.

In a preferred embodiment, the ACL may be a text file containing data organized in such a way that it is accessible to a computer. As an illustration, the ACL looks as follows in a preferred embodiment.

Preferred Domain Names

xyz.com

abc.def.com (Sub domain 'abc' at the domain 'def' is preferred)

*.def.com (All requests from domain 'def' are preferred)

Preferred customers

john.doe@pqr.com

Preferred web site addresses

law.gwu.edu

Disapproved domain names

*.gov

*.edu

In the foregoing, an asterisk character ("*") is used to indicate a wild card. Any domain name or address that matches the name given is included or excluded in the access control list. If a seller receives a request to purchase an item of e-content from a disapproved domain name, web site, individual customer or other buyer, the seller will make his own determination whether to provide the item or not. The CHSP, which provides the above-shown ACL, will not be responsible under the agreement to collect payment from a person or entity on the disapproved list.

It should be noted that in creating the ACL, there could be a conflict between a broader and more general access restriction/allowance given to a domain, and a specific allowance/restriction privilege or right accorded to a particular individual or a sub-domain within the domain. For example, suppose a web site abc.com is generally given access

permissions, i.e., any request for e-content that comes from the web site abc.com will be honored by the seller with the understanding that the CHSP will pay the seller for the goods delivered. Suppose, further, that a particular user at the web site abc.com, with address John.Doe@abc.com, is a "k.d." (known defaulter). The ACL may indicate both these facts to the seller. In such a case, the relevant portion of the ACL may look as follows.

Preferred Domain Names

. . .

abc.com

. . .

Disapproved individual accounts

. . .

John.Doe@abc.com

. . .

Where there is a conflict in this manner, in a preferred embodiment, the particular overrides the general. That is, the invented system advises a seller to take note that a request came from abc.com, and then checks whether the user John.Doe is marked in the ACL as a disapproved entity. If so, the seller is expected to make no assumptions as to payment from the CHSP under the seller-CHSP agreement. Other embodiments are contemplated to incorporate similar methods of resolving such conflicts.

While in a preferred mode the ACL is shown as an American Standard Code for Information Interchange (ASCII) text file, in other embodiments the list could be configured in other forms, such as a series of entries in a Relational Database Management System (RDBMS) such as an Oracle® RDBMS.

To purchase an electronically deliverable item of e-content, a buyer begins by surfing Internet 120 using a browser program running on the buyer computer. In a preferred embodiment, the browser is Netscape® Communicator™. Alternative embodiments use other browsers such as Microsoft Corporation's Internet Explorer™, or browsers available from Apache™, NeoPlanet™ or other sources. The buyer enters in the browser the address of a web site operated by a seller. The browser formulates and sends a request message to the seller computer. In response, the seller computer sends a web page which is received and displayed on the browser at the buyer computer. (Step 202). The web pages can be constructed using any one of the several methods known to a person skilled in the art of "authoring" web pages. These methods include creating web pages using Hyper-Text Markup Language (HTML), Extensible Markup Language (XML), The Java® programming method, JavaScript™, Active Server Pages®, Python™, and others.

Fig. 3 depicts an illustrative web page 300 displayed by the buyer computer. The web page 300 contains an offer from a seller 310 that an electronically deliverable item of e-content, such as the price of a stock, a telephone number of a person or a business, a piece of news such as sports news, weather information, a strip of comics, a movie clip, a song, a graphical image such as a floral arrangement, a piece of art, or a celebrity photograph, is available for sale to the buyer. Other offers made by a seller may include a one-time or shared use of software applications, services, data or other objects. Fig. 3 depicts an offer 310 to buy a cartoon strip. The buyer is prompted to select either a button labeled "Agree" 302 or a button labeled "Refuse" 304 to indicate his acceptance or refusal to purchase the item offered for sale.

In a preferred embodiment, seller computer 106 notifies the buyer that the item is offered for sale at a price. In an alternative embodiment, the transaction monitor 104 is notified by the seller computer 106 that the item is available for sale. This may happen if

the ISP has a special arrangement with the seller whereby the seller's goods are prominently displayed on preferred pages on the ISP web sites.

In a further embodiment, it may be the case that the seller expects immediate electronic payment by charging a credit card or other method of payment. The transaction monitor 104 software intercepts such a notification from the seller computer 106 and displays a message to the buyer indicating that as an alternative, the buyer can purchase the item without making an immediate electronic payment because the buyer has an agreement with the ISP as described in step 200.

In a further embodiment, the price is discounted or changed based on the identity of the buyer, the ISP with which the buyer has an account, the CHSP, the number of prior purchases made by the buyer, any special promotions offered by the seller and other similar factors.

If the buyer decides to pay to access or receive the electronically deliverable item of e-content offered by the seller, he signifies this by clicking on the button "Agree" 302. (Step 204). Alternative methods may also be used to signify the agreement to purchase the item.

If, on the other hand, the buyer does not wish to purchase the item, he will either click on the button "Refuse" 304 or move on to visit another web site. (Step 250).

When the buyer clicks on the button "Agree" 302, the buyer computer 100 formulates and sends a "purchase" message to the seller computer 106 via ISP computer 102. (Step 206).

The seller computer 106 checks in its database 107 to verify that the ISP computer 102 has an agreement with the CHSP and, if so, delivers the item selected by the buyer to the buyer computer 100 via the ISP computer 102. (Step 208). Transaction monitor 104 monitors the transaction between the buyer and the seller and records the delivery of the

requested item as it passes through the ISP. Preferably it creates a record that includes the time of the transaction, the account numbers of the buyer and the seller, a description of the item delivered and its price. These records are stored in database 105.

In a preferred embodiment, when the buyer computer 100 receives the item, no acknowledgment is sent by the buyer computer 100. In alternative embodiments, notification of successful delivery may be sent from the buyer computer 100 to either the ISP computer 102 or the seller 106 or from the ISP computer 102 to the seller computer 106. (Step 212). If a delivery notification is received, then the ISP computer 102 or the seller computer 106 records the time when it received the notification and marks the transaction as completed. (Step 214).

In systems where a notification of delivery is used, seller computer 106 or the ISP computer 102 waits for a pre-determined period of time to receive the delivery notification. If the notification is not received within the pre-determined period, the transaction is flagged by the seller computer 106 or the ISP computer 102, as the case may be, indicating a questionable delivery. (Step 216)

At the end of a billing cycle, the ISP computer 102 generates an invoice and sends the buyer a notification for payment of his usual service provisioning invoice and an additional payment for the items the buyer purchased from the seller. (Step 218). The billing cycle could be every week, every other week or any suitable time period. Alternatively, billing could be triggered when total charges reached a specific dollar amount.

The ISP will then collect payment from the buyer for the items delivered and in accordance with its agreement with the CHSP will remit payments to the CHSP. Illustratively, if the buyer does not pay, no payment is required to be made to the CHSP by the ISP.

Periodically, ISP computer 102 also sends the CHSP the transaction records that have been accumulating in the database 105. The CCH computer 108 then processes the transaction and payment records to determine the amount owed to the seller and the CHSP pays the seller accordingly. (Step 220). In a preferred embodiment of the invention, the CHSP makes payment to the seller only for items for which the buyer has paid. Other criteria may be used for making such payment to the seller.

In a preferred embodiment of the invention, no records are kept by the seller or the buyer of actual delivery of the requested information. This avoids the costs of such record keeping and can be justified because any failure to bill for delivery of an item of e-content has a relatively small effect on the overall economics of the operation.

Nevertheless, some sellers may want to keep their own internal records to protect themselves from the possibility of substantial losses arising, for example, from systematic failure of the ISP computer 102. In this case, a dispute resolution protocol advantageously should be agreed upon by the CHSP, the ISP and the seller. For example, if the records from the ISP computer 102 and those from the seller computer 106 do not match—where a record for a specific transaction identifier from the seller computer 106 indicates a completed delivery whereas a record with a corresponding transaction identifier from the ISP computer 102 indicates a non-delivery of the item—a dispute resolution protocol may be invoked. In a preferred embodiment, this protocol splits the difference in two—i.e., for disputed items, the seller is paid only half the amount he demanded. In other embodiments, payment might be determined solely on the basis of the seller's delivery records. There could be other methods of resolving the disputes as well. These methods may also vary based on the frequency of disparities, the source of disputes, etc. For example, if a particular seller claims more than an average number of times that he is entitled to a payment, then the matter is given consideration in resolving the dispute.

As is well known, many potential buyers have computers that are connected directly to the Internet 120 without the intermediary such as an ISP computer 102. Such computers are represented in Fig. 1 as computer 101. If a buyer attempted to make a purchase from a seller computer 106 using a computer 101, the seller computer would recognize that access was not made through one of the ISP computers 102 identified in its database 107 and presumably would decline to deliver the requested item. In accordance with a further embodiment of the invention, a method is provided for serving such buyers using the CCH computer 108.

In particular, as shown in Fig. 4, when the seller computer 106 learns that the buyer computer 101 has not used an ISP computer 102 to access the seller computer (Step 409), it forwards the item that has been requested by the buyer computer to the CCH computer 108 accompanied by the address of the buyer computer. (Step 410). Advantageously, the item is forwarded via the Internet 120 and link 142.

The CCH computer 108 advantageously maintains accounts for buyer computers that are not connected to ISP computers 102. If the buyer does not already have an account with the CCH computer 108 (Step 412), the CCH computer 108 can ask the buyer computer via the Internet 120 if he would like to establish an account and can obtain the information and consent needed to establish an account (Step 414). Once the buyer has an account, the CCH computer 108 can then forward the requested electronically deliverable item of e-content to the buyer. (Step 416). On a regular basis, the CCH computer 108 will then bill the buyer computers that have accounts with the CCH computer 108 in the same fashion as the ISP computer 102 bills the buyer computers connected to the ISP computer 102. (Step 418). Finally, the CHSP will pay the sellers for the items that the buyer pays for. (Step 422).

There is described in the foregoing a new and useful way to effect transactions involving micro-payments over a communications network for delivery of e-content to a

computer via the network without the need for special software at the buyer's computer or proprietary software at the seller's computer. Moreover, the only additional software used at the seller's computer is the software needed to determine if the ISP computer 102 is one that has an agreement with the CHSP. In circumstances where all or nearly all ISPs have an agreement with the CHSP and there are relatively few buyers who do not access the Internet 120 through an ISP computer 102, it may be feasible to operate the present invention without checking to determine if the ISP computer 102 has an agreement with the CHSP.

It should be understood that various modifications will be readily apparent to a person skilled in the art without departing from the spirit and scope of the invention. For example, even though several computers are described, the invention can be practiced in a single computer or in a network of several computers; the databases may be distributed; there could be a plurality of sellers, and buyers as well as a plurality of ISPs servicing the buyers. Additionally, though an ISP is used to illustrate the principles of the invention, any other service provider or entity, such as a bank, a cable company, an electric or telephone utility company, a credit card issuing company whether a bank or other financial institution can serve the role of the service provider and collect payment from the buyer. Accordingly, it is intended that the scope of the claims appended hereto should be construed as encompassing all novel features in the present invention including all features considered equivalent by persons skilled in the art.

THE CLAIMS

What is claimed is:

1. A method of purchasing e-content over a communications network by a buyer operating a buyer computer from a seller operating a seller computer comprising the steps of:

(a) informing the seller of the buyer's desire to obtain the e-content;

(b) delivering the e-content from the seller to the buyer;

(c) recording information at a service provider concerning delivery of the e-content; and

(d) sending an invoice from the service provider to the buyer for the e-content obtained from the seller.

2. The method of claim 1, further comprising the step of making payment to the seller for the e-content the buyer obtained from the seller.

3. The method of claim 2, wherein the payment is delivered to the seller via a clearing house.

4. The method of claim 3, wherein the buyer uses a web browser to inform the seller of the e-content he desires, thereby obviating the need for a specially designed software program to accomplish the purchase.

5. The method of claim 1, wherein the seller displays information relating to the offer to sell the e-content on a web site.

6. The method of claim 1 wherein the e-content is delivered to the buyer via the service provider.

7. The method of claim 1 wherein the e-content is a telephone number, stock price information, comic strip, a piece of music, a graphical image, an item of news, software usage license, or a piece of literature.

8. The method of claim 1 wherein the service provider is a cable company, an electric utility company, a phone company, an Internet service provider company, a bank, a satellite broadcast company, or an apartment complex.

9. At least one of a plurality of programmed computers executing computer code to perform the method of claim 1.

10. Computer executable program code stored on a computer readable medium, the code to perform the method of claim 1.

11. A method of purchasing e-content over a communication network by a buyer operating a buyer computer from a seller operating a seller computer comprising the steps of:

establishing a buyer account;

establishing a seller account;

informing the seller of the buyer's desire to obtain the e-content;

delivering the e-content from the seller to the buyer;

recording information at a service provider concerning delivery of the e-content; and

sending an invoice from the service provider to the buyer for the e-content obtained from the seller.

12. The method of claim 11 further comprising the step of making payment to the seller for the e-content the buyer obtained from the seller.

13. The method of claim 12 further comprising the step of making payment to the seller via a clearing house.

14. The method of claim 11 wherein the buyer uses a web browser to inform the seller of the e-content he desires, thereby obviating the need for a specially designed software program to accomplish the purchase.

15. The method of claim 11 wherein the seller displays information relating to the offer to sell the electronically deliverable e-content on a web site.

16. The method of claim 11 wherein the e-content is a telephone number, stock price information, comic strip, a piece of music, a graphical image, an item of news, software usage license or a piece of literature.

17. The method of claim 11 wherein the service provider is a cable company, an electric utility company, a phone company, an Internet service provider company, a bank, a satellite broadcast company, or an apartment complex.

18. The method of claim 11 wherein the seller has access to a database that identifies those who have established buyer accounts, said method further comprising the step of checking said database upon being informed of the buyer's desire to obtain the e-content so as to determine that the buyer has an account.

19. A transaction monitor, comprising:

code to capture electronic messages transmitted over a computer network; and

code to record a message indicative of a buyer's purchase of an item of e-content.

20. The transaction monitor of claim 19, further comprising code to generate an invoice to the buyer for the purchase.

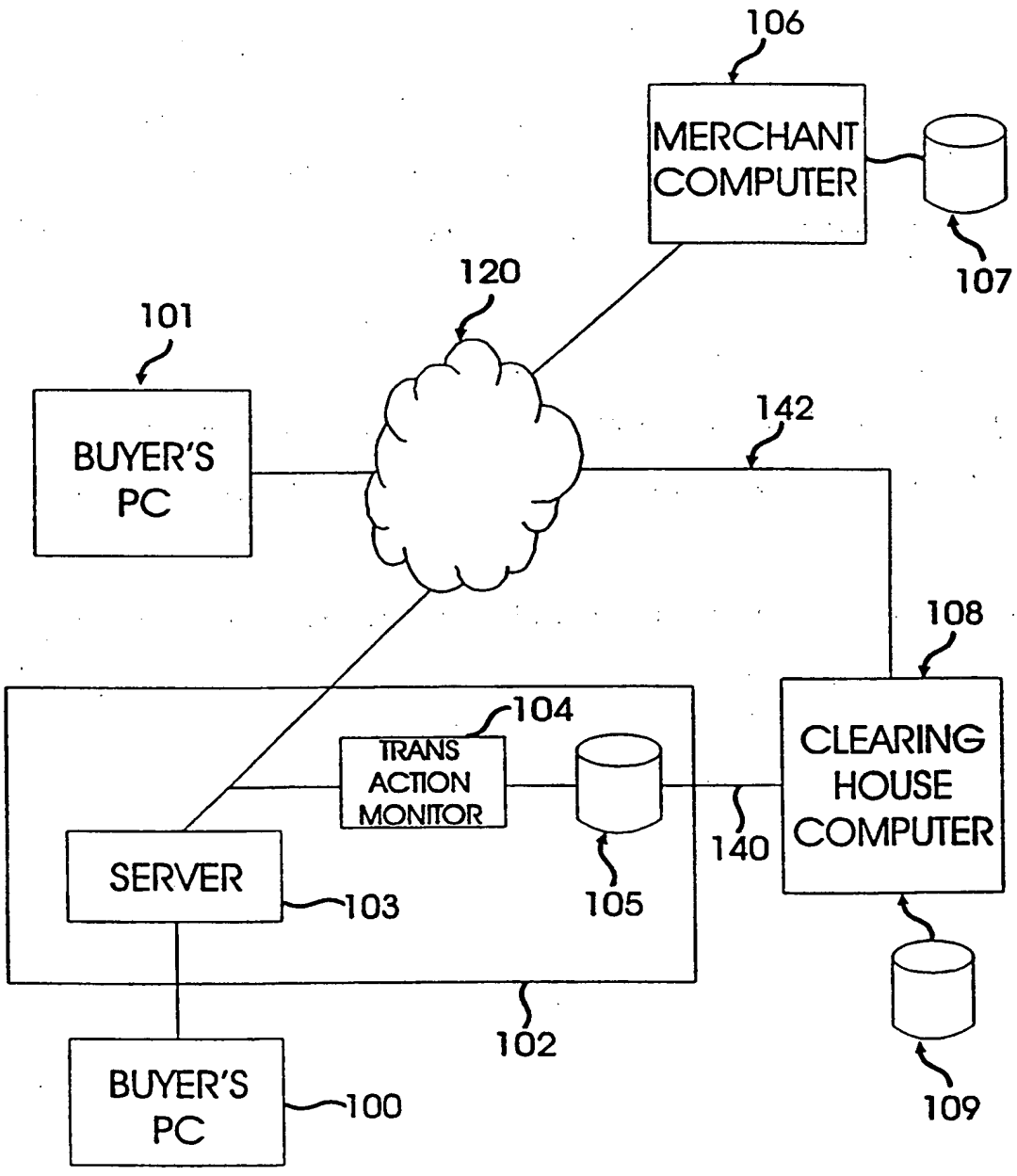
106
MERCHANT COMPUTER
107
120
101
BUYER'S PC
142
108
104
TRANS ACTION MONITOR
105
CLEARING HOUSE COMPUTER
140
SERVER
103
102
BUYER'S PC
100
109

FIG. 1

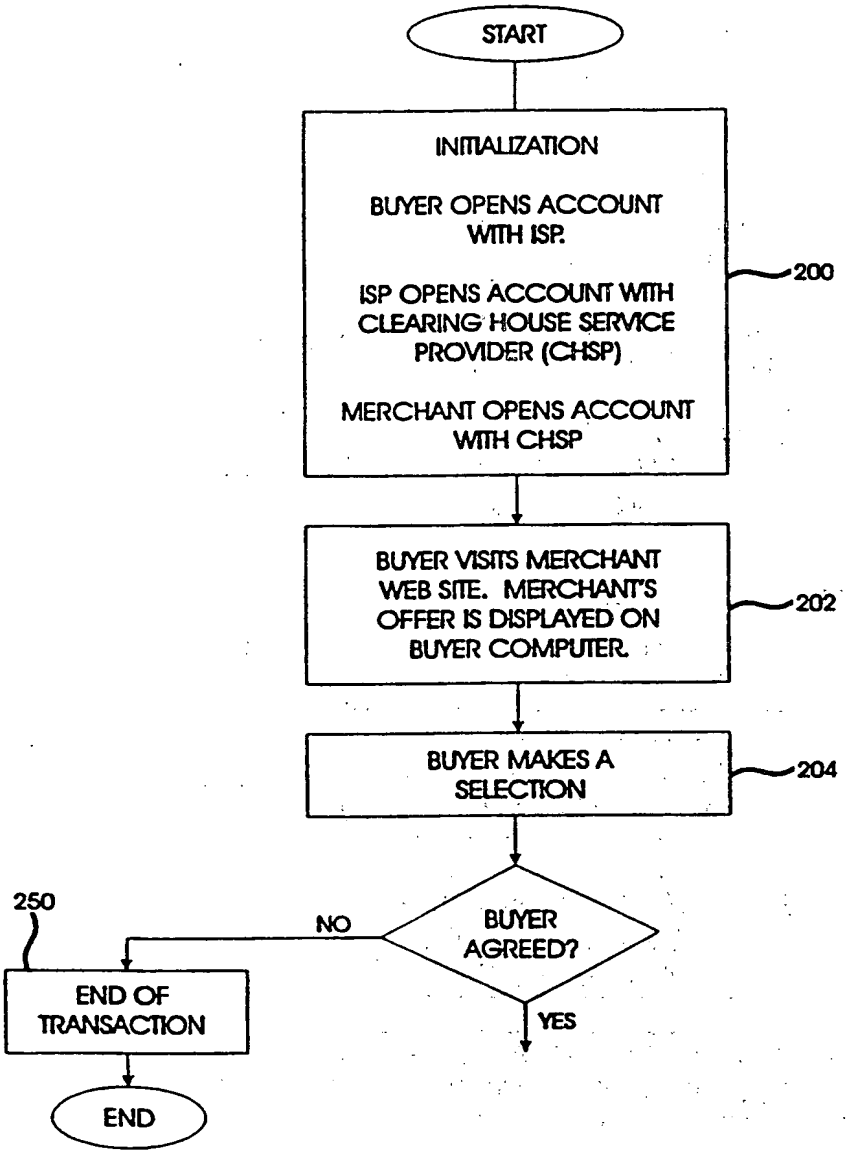
START
INITIALIZATION
BUYER OPENS ACCOUNT WITH ISP.
ISP OPENS ACCOUNT WITH CLEARING HOUSE SERVICE PROVIDER (CHSP)
MERCHANT OPENS ACCOUNT WITH CHSP
200
BUYER VISITS MERCHANT WEB SITE. MERCHANT'S OFFER IS DISPLAYED ON BUYER COMPUTER.
202
BUYER MAKES A SELECTION
204
BUYER AGREED?
NO
YES
250
END OF TRANSACTION
END

FIG. 2A

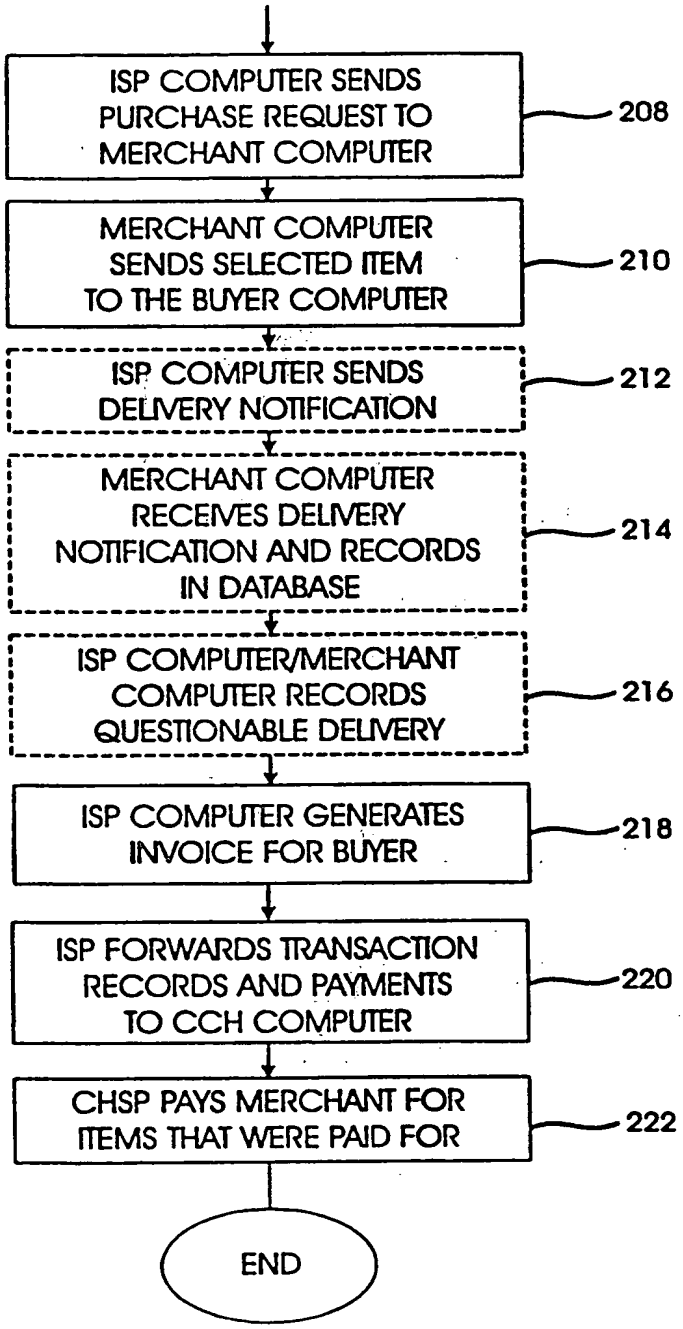

FIG. 2B

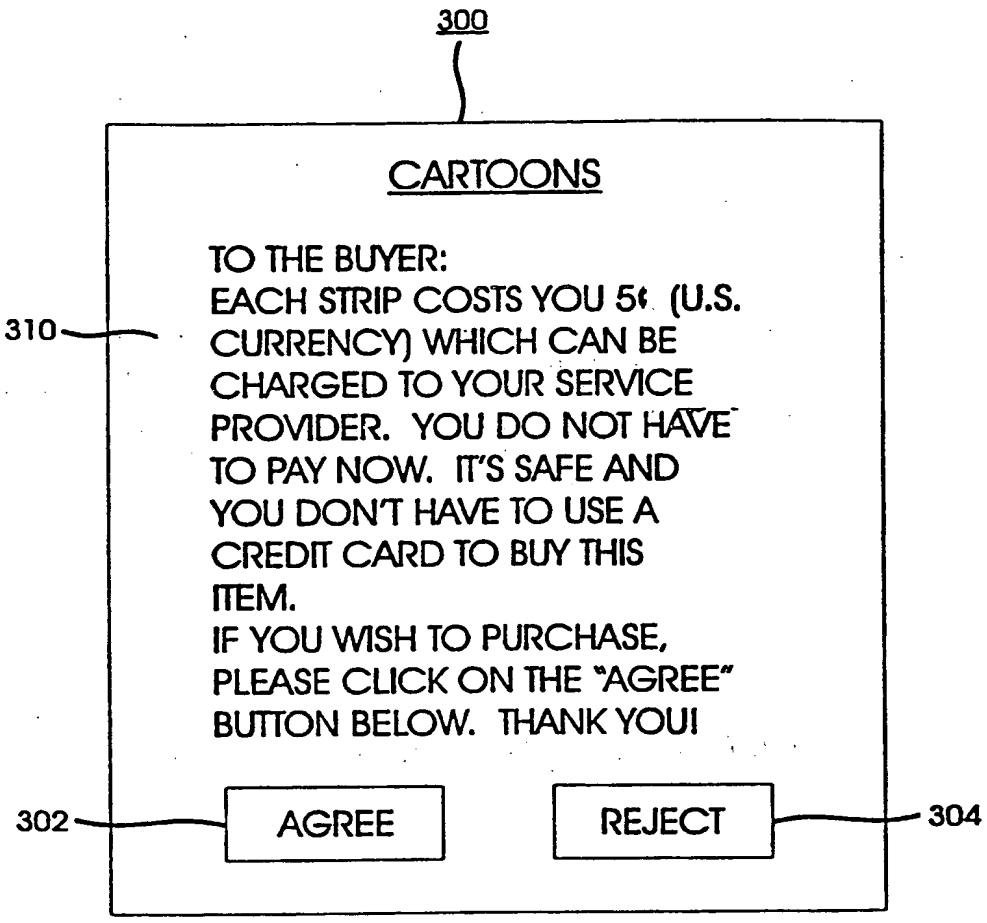
300
CARTOONS
TO THE BUYER:
EACH STRIP COSTS YOU 5¢ (U.S. CURRENCY) WHICH CAN BE CHARGED TO YOUR SERVICE PROVIDER. YOU DO NOT HAVE TO PAY NOW. IT'S SAFE AND YOU DON'T HAVE TO USE A CREDIT CARD TO BUY THIS ITEM.
IF YOU WISH TO PURCHASE, PLEASE CLICK ON THE "AGREE" BUTTON BELOW. THANK YOU!
310
302
AGREE
REJECT
304

FIG. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US00/02761

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) :G06F 17/60
US CL :705/40
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/40, 39, 35, 34, 30, 400, 26, 27, 1, 500

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,T --- Y,T	US 6,047,268 A (BARTOLI ET AL) 04 April 2000, Col. 2, lines 34-55, Col. 3, lines 2-12, Col. 4, lines 6-20, Col. 8, lines 5-6, Col. 9, lines 53-56, Abstract, lines 10-19.	1-8 --- 9, 11-18
Y	US 5,809,144 A (SIRBU ET AL) 15 September 1998, Col. 3, lines 62-64	11-18

☐ Further documents are listed in the continuation of Box C ☐ See patent family annex.

*	Special categories of cited documents	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search 14 APRIL 2000	Date of mailing of the international search report 18 MAY 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Allen MacDonald Telephone No. (703) 305-3800

Form PCT/ISA/210 (second sheet) (July 1998)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/02761

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.: 10
because they relate to subject matter not required to be searched by this Authority, namely:

The subject matter of claim 10 is inoperative and therefore lacks utility. In this case, the code is not executed by a computer.

2. [ ] Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. [X] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-18

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/02761

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s)1-18, drawn to electronic shopping.
Group II, claim(s) 19-20, drawn to program code execution monitor.

The inventions listed as Groups I and II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I is drawn to electronic shopping. It goes through the process necessary for purchasing e-content over a communications network. However, Group II is an apparatus claim which discloses a program code monitor's functional operations.